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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,798	04/15/2004	Hiroshi Shinriki	ASMJP.149AUS	6654
20995	7590	05/31/2006	EXAMINER	
KNOBBE MARTENS OLSON & BEAR LLP			ZERVIGON, RUDY	
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FOURTEENTH FLOOR			PAPER NUMBER	
IRVINE, CA 92614			1763	

DATE MAILED: 05/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/824,798	SHINRIKI ET AL.	
	Examiner	Art Unit	
	Rudy Zervigon	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 21-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 30-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. This application contains claims 21-29 drawn to an invention nonelected with traverse in Paper No. October 7, 2005. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “second section (107; Figure 4) being disposed upstream of the head surface (301; Figure 4), said first section (81,82; Figure 4) being disposed upstream of the second section (107; Figure 4)” as claimed by claim 30 must be shown or the features canceled from the claims. No new matter should be entered. Figure 4 shows 2nd section 107 as downstream of 1st section 81, 82.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet”

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pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 30-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 30 recites the limitation “head surface”. There is insufficient antecedent basis for this limitation in the claim.

6. Claims 30-40 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: Applicant’s amended claim 30 requires “second section (107; Figure 4) being disposed upstream of the head surface (301; Figure 4), said first section (81,82; Figure 4) being disposed upstream of the second section (107; Figure 4)” as claimed by claim 30 must be shown or the features canceled from the claims. Figure 4 shows 2nd section 107 as downstream of 1st section 81, 82.

Claim Rejections - 35 USC § 102

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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8. Claims 1-4, 6, 7, 9-11, 17-19, 30, 32-37, and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Okase; Wataru (US 5884009 A). Okase teaches a gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) configured to be connected to an evacuable reaction chamber (8; Figure 9; column 17, line 55 - column 18, line 41) provided with a support (81; Figure 9; column 17, line 55 - column 18, line 41) for placing a substrate ("W"; Figure 9; column 17, line 55 - column 18, line 41) thereon, comprising: a gas-distribution head (9a-c, 85a; Figure 9; column 17, line 55 - column 18, line 41) for introducing gases into the chamber (8; Figure 9; column 17, line 55 - column 18, line 41) through a head surface (9; Figure 9; column 17, line 55 - column 18, line 41), comprising a first section (9a-c; Figure 9; column 17, line 55 - column 18, line 41) for discharging a gas through the head surface (9; Figure 9; column 17, line 55 - column 18, line 41) toward the support (81; Figure 9; column 17, line 55 - column 18, line 41) and a second section (85a; Figure 9; column 17, line 55 - column 18, line 41) for discharging a gas through the head surface (9; Figure 9; column 17, line 55 - column 18, line 41) toward the support (81; Figure 9; column 17, line 55 - column 18, line 41), said first and said second sections (9a-c, 85a; Figure 9; column 17, line 55 - column 18, line 41) being isolated from each other with respect to gas mixing in the gas-distribution head (9a-c, 85a; Figure 9; column 17, line 55 - column 18, line 41), at least one (85a) of which section is coupled to an exhaust system (46, 47; Figure 9; column 17, line 55 - column 18, line 41) for purging therefrom a gas present in the corresponding section without passing through the head surface (9; Figure 9; column 17, line 55 - column 18, line 41), as claimed by claim 1

- i. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 1, wherein the first section (9a-c; Figure 9; column 17, line 55 - column 18, line

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41) and the second section (85a; Figure 9; column 17, line 55 - column 18, line 41) are each disposed parallel to the head surface (9; Figure 9; column 17, line 55 - column 18, line 41), said second section (85a; Figure 9; column 17, line 55 - column 18, line 41) being closer to the head surface (9; Figure 9; column 17, line 55 - column 18, line 41) than is the first section (9a-c; Figure 9; column 17, line 55 - column 18, line 41), wherein at least the first section (9a-c; Figure 9; column 17, line 55 - column 18, line 41) is coupled to the exhaust system (46,47; Figure 9; column 17, line 55 - column 18, line 41), as claimed by claim 2

ii. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 1, wherein the first section (9a-c; Figure 9; column 17, line 55 - column 18, line 41) and the second section (85a; Figure 9; column 17, line 55 - column 18, line 41) are each disposed parallel to the head surface (9; Figure 9; column 17, line 55 - column 18, line 41), said second section (85a; Figure 9; column 17, line 55 - column 18, line 41) being closer to the head surface (9; Figure 9; column 17, line 55 - column 18, line 41) than is the first section (9a-c; Figure 9; column 17, line 55 - column 18, line 41), wherein the second section (85a; Figure 9; column 17, line 55 - column 18, line 41) is coupled to the exhaust system (46,47; Figure 9; column 17, line 55 - column 18, line 41), as claimed by claim 3

iii. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 1, wherein the first section (9a-c; Figure 9; column 17, line 55 - column 18, line 41) and the second section (85a; Figure 9; column 17, line 55 - column 18, line 41) are

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- both coupled to exhaust systems (46,47; Figure 9; column 17, line 55 - column 18, line 41), respectively as claimed by claim 4
- iv. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 2, wherein the first section (9a-c; Figure 9; column 17, line 55 - column 18, line 41) reaches the head surface (9; Figure 9; column 17, line 55 - column 18, line 41) through the second section (85a; Figure 9; column 17, line 55 - column 18, line 41) without being communicated with each other with respect to gas mixing, as claimed by claim 6
- v. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 6, wherein the first section (9a-c; Figure 9; column 17, line 55 - column 18, line 41) and the second section (85a; Figure 9; column 17, line 55 - column 18, line 41) are communicated with the head surface (9; Figure 9; column 17, line 55 - column 18, line 41) through a plurality of bores (87a, 86a; Figure 9), as claimed by claim 7
- vi. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 4, wherein the first section (9a-c; Figure 9; column 17, line 55 - column 18, line 41) and the second section (85a; Figure 9; column 17, line 55 - column 18, line 41) are each disposed parallel to the head surface (9; Figure 9; column 17, line 55 - column 18, line 41) and each separately communicated with the head surface (9; Figure 9; column 17, line 55 - column 18, line 41) through bores (87a, 86a; Figure 9), said second section (85a; Figure 9; column 17, line 55 - column 18, line 41) being closer to the head surface (9; Figure 9; column 17, line 55 - column 18, line 41) than is the first section (9a-c; Figure 9; column 17, line 55 - column 18, line 41), as claimed by claim 9

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- vii. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 9, wherein the bores (87a, 86a; Figure 9) communicating the second section (85a; Figure 9; column 17, line 55 - column 18, line 41) and the head surface (9; Figure 9; column 17, line 55 - column 18, line 41) are disposed predominantly in a central area of the head surface (9; Figure 9; column 17, line 55 - column 18, line 41), whereas the bores (93b; Figure 9; column 17, line 55 - column 18, line 41) communicating the first section (9a-c; Figure 9; column 17, line 55 - column 18, line 41) and the head surface (9; Figure 9; column 17, line 55 - column 18, line 41) are uniformly distributed on the head surface (9; Figure 9; column 17, line 55 - column 18, line 41), as claimed by claim 10
- viii. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 10, wherein the second section (85a; Figure 9; column 17, line 55 - column 18, line 41) has a prolonged shape in the gas-distribution head (9a-c, 85a; Figure 9; column 17, line 55 - column 18, line 41), as claimed by claim 11
- ix. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 2, wherein the first section (9a-c; Figure 9; column 17, line 55 - column 18, line 41) is coupled to a source gas line (86a; "process gas") and a purge gas line (87; "purge gas"), and the second section (85a; Figure 9; column 17, line 55 - column 18, line 41) is coupled to an additive gas line (86a; "process gas") and a purge gas line (87; "purge gas"), as claimed by claim 17. Applicant's claim requirements of gas identity does not further limit applicant's pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP

2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

- x. The gas-feeding apparatus according to claim 1, which is connected to an evacuable reaction chamber (8; Figure 9; column 17, line 55 - column 18, line 41) provided with a support (81; Figure 9; column 17, line 55 - column 18, line 41) for placing a substrate ("W"; Figure 9; column 17, line 55 - column 18, line 41) thereon, as claimed by claim 18
- xi. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 18, wherein a space (8; Figure 9) between the head surface (9; Figure 9; column 17, line 55 - column 18, line 41) and the support (81; Figure 9; column 17, line 55 - column 18, line 41) is coupled to an exhaust system (46,47; Figure 9; column 17, line 55 - column 18, line 41), as claimed by claim 19
- xii. A gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) adapted to be connected to an evacuable reaction chamber (8; Figure 9; column 17, line 55 - column 18, line 41) for atomic layer growth processing, comprising: a distribution plate (9; Figure 9); a first plate (9b; Figure 9) having first bores (93a; Figure 9) through which a first gas ("process gas"; Figure 9) passes, wherein a first section (Top or upstream Z1-Z4; Figure 9) is formed between the distribution plate (9; Figure 9) and the first plate (9b; Figure 9), wherein the first gas ("process gas"; Figure 9) is introduced into the first section (Top or upstream Z1-Z4; Figure 9) and passes through the first bores (93a; Figure

9); and a second plate (9c; Figure 9) having second bores (93b; Figure 9) through which a second gas ("purge gas"; Figure 9) passes, wherein a second section (94, 95; Figure 9 - Compare with Applicant's 2nd section 107 "upstream" of 1st section 81,82) is formed between the first plate (9b; Figure 9) and the second plate (9c; Figure 9), wherein the second gas ("purge gas"; Figure 9) is introduced into the second section (94, 95; Figure 9 - Compare with Applicant's 2nd section 107 "upstream" of 1st section 81,82) and passes through the second bores (93b; Figure 9), said second plate (9c; Figure 9) having third bores (center 93b; Figure 9) through which the first gas ("process gas"; Figure 9) passes, wherein the second section (94, 95; Figure 9 - Compare with Applicant's 2nd section 107 "upstream" of 1st section 81,82) is provided with connectors (92; Figure 9) which connect the respective first bores (93a; Figure 9) and the respective third bores (center 93b; Figure 9) in the second section (94, 95; Figure 9 - Compare with Applicant's 2nd section 107 "upstream" of 1st section 81,82) without being communicated with the second bores (93b; Figure 9), wherein at least one of the first section (Top or upstream Z1-Z4; Figure 9) or the second section (94, 95; Figure 9 - Compare with Applicant's 2nd section 107 "upstream" of 1st section 81,82) is coupled to an exhaust system (46,47; Figure 9; column 17, line 55 - column 18, line 41) which discharges the gas in the corresponding section without passing through the corresponding bores, said second section (94, 95; Figure 9 - Compare with Applicant's 2nd section 107 "upstream" of 1st section 81,82) being disposed upstream of the head surface (9; Figure 9; column 17, line 55 - column 18, line 41), said first section (Top or upstream Z1-Z4; Figure 9) being

disposed upstream of the second section (94, 95; Figure 9 - Compare with Applicant's 2nd section 107 "upstream" of 1st section 81,82) as claimed by claim 30

- xiii. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 30, wherein the distribution plate (9; Figure 9) is provided with a first gas ("process gas"; Figure 9) inlet (86a) disposed in a central area of the distribution plate (9; Figure 9) for introducing the first gas ("process gas"; Figure 9) into the first section (Top or upstream Z1-Z4; Figure 9), as claimed by claim 32
- xiv. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 30, wherein the second section (94, 95; Figure 9 - Compare with Applicant's 2nd section 107 "upstream" of 1st section 81,82) is provided with a second gas ("purge gas"; Figure 9) inlet (96) disposed in the vicinity of an outer periphery of the second section (94, 95; Figure 9 - Compare with Applicant's 2nd section 107 "upstream" of 1st section 81,82) , as claimed by claim 33
- xv. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 30, wherein the first section (Top or upstream Z1-Z4; Figure 9) is coupled to the exhaust system (46,47; Figure 9; column 17, line 55 - column 18, line 41), wherein the first gas ("process gas"; Figure 9) present in the first section (Top or upstream Z1-Z4; Figure 9) is exhausted around an outer periphery of the distribution plate (9; Figure 9), as claimed by claim 34
- xvi. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 30, wherein the second section (94, 95; Figure 9 - Compare with Applicant's 2nd section 107 "upstream" of 1st section 81,82) is coupled to the exhaust system (46,47;

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Figure 9; column 17, line 55 - column 18, line 41), wherein the second gas ("purge gas"; Figure 9) present in the second section (94, 95; Figure 9 - Compare with Applicant's 2nd section 107 "upstream" of 1st section 81,82) is exhausted through a second gas ("purge gas"; Figure 9) outlet (46, 47) disposed in the vicinity of an outer periphery of the second section (94, 95; Figure 9 - Compare with Applicant's 2nd section 107 "upstream" of 1st section 81,82), as claimed by claim 35

- xvii. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 30, wherein the second bores (93b; Figure 9) are disposed predominantly in a central area of the second plate (9c; Figure 9), as claimed by claim 36
- xviii. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 30, wherein the first bores (93a; Figure 9) are distributed uniformly on the first plate (9b; Figure 9), and the third bores (center 93b; Figure 9) are disposed right under the respective first bores (93a; Figure 9), as claimed by claim 37
- xix. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 36, wherein the second section (94, 95; Figure 9 - Compare with Applicant's 2nd section 107 "upstream" of 1st section 81,82) is coupled to the exhaust system (46,47; Figure 9; column 17, line 55 - column 18, line 41) and is provided with a second gas ("purge gas"; Figure 9) inlet (96) and a second gas ("purge gas"; Figure 9) outlet (46, 47) near an outer periphery of the second section (94, 95; Figure 9 - Compare with Applicant's 2nd section 107 "upstream" of 1st section 81,82), wherein the second section (94, 95; Figure 9 - Compare with Applicant's 2nd section 107 "upstream" of 1st section

81,82) has a prolonged shape from the inlet to the outlet via the central area having the second bores (93b; Figure 9), as claimed by claim 40

Claim Rejections - 35 USC § 103

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. Claims 5, 8, 12, 13, 20, 31, 38, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okase; Wataru (US 5884009 A) in view of Hills; Graham W. et al. (US 5685914 A). Okase is discussed above. Okase does not teach:

- i. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 2, wherein the first section (9a-c; Figure 9; column 17, line 55 - column 18, line 41) has an volume which is larger than that of the second section (85a; Figure 9; column 17, line 55 - column 18, line 41), as claimed by claim 5
- ii. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 2, wherein the first section (9a-c; Figure 9; column 17, line 55 - column 18, line 41) comprises a central distribution inlet and a cone-shaped distribution plate extending radially therefrom, as claimed by claim 8
- iii. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 9, wherein the bores (87a, 86a; Figure 9) communicating the first section (9a-c; Figure 9; column 17, line 55 - column 18, line 41) and the head surface (9; Figure 9; column 17, line 55 - column 18, line 41) have a total opening area on the head surface (9; Figure 9; column 17, line 55 - column 18, line 41) which is larger than that of the bores (87a, 86a; Figure 9) communicating the second section (85a; Figure 9; column 17, line 55

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- column 18, line 41) and the head surface (9; Figure 9; column 17, line 55 - column 18, line 41), as claimed by claim 12
- iv. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 9, wherein the bores (93b; Figure 9; column 17, line 55 - column 18, line 41) communicating the first section (9a-c; Figure 9; column 17, line 55 - column 18, line 41) and the head surface (9; Figure 9; column 17, line 55 - column 18, line 41) have an average bore size which is larger than that of the bores (86a) communicating the second section (85a; Figure 9; column 17, line 55 - column 18, line 41) and the head surface (9; Figure 9; column 17, line 55 - column 18, line 41), as claimed by claim 13
- v. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 19, wherein the exhaust system (46,47; Figure 9; column 17, line 55 - column 18, line 41) for purging therefrom a gas present in the first or second section and the exhaust system (46,47; Figure 9; column 17, line 55 - column 18, line 41) for evacuating the space (8; Figure 9) between the head surface (9; Figure 9; column 17, line 55 - column 18, line 41) and the support (81; Figure 9; column 17, line 55 - column 18, line 41) are connected and merged to a single exhaust line, as claimed by claim 20
- vi. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 30, wherein the first plate (9b; Figure 9) and the second plate (9c; Figure 9) are disposed parallel to each other, and the distribution plate (9; Figure 9) has a cone shape, as claimed by claim 31

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- vii. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 30, wherein the third bores (center 93b; Figure 9) have a total opening area which is larger than that of the second bores (93b; Figure 9), as claimed by claim 38
- viii. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 30, wherein the third bores (center 93b; Figure 9) have an average bore size which is larger than that of the second bores (93b; Figure 9), as claimed by claim 39

Hills teaches a wafer processing reactor (Figure 14) including a central distribution inlet (170) and a cone-shaped distribution plate (172) extending radially therefrom.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Hill's cone-shaped distribution plate to Okase's apparatus and to optimize the relative dimensions of Okase's apparatus.

Motivation to add Hill's cone-shaped distribution plate to Okase's apparatus is for confining reactant gases (column 2; lines 45-50) and to optimize the relative dimensions of Okase's apparatus. It is well established that changes in apparatus dimensions are within the level of ordinary skill in the art. (Gardner v. TEC Systems, Inc. , 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied , 469 U.S. 830, 225 USPQ 232 (1984); In re Rose , 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04).

11. Claims 14, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okase; Wataru (US 5884009 A) in view of Salimian; Siamak et al. (US 5656123 A). Okase is discussed above. Okase does not teach:

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- i. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 2, further comprising an RF power source for exerting RF power exclusively onto an interior of the second section (85a; Figure 9; column 17, line 55 - column 18, line 41), as claimed by claim 14
- ii. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 14, wherein the RF power source is coupled to a bottom plate of the first section (9a-c; Figure 9; column 17, line 55 - column 18, line 41) which physically separates and insulates the first section (9a-c; Figure 9; column 17, line 55 - column 18, line 41) from the second section (85a; Figure 9; column 17, line 55 - column 18, line 41), and the head surface (9; Figure 9; column 17, line 55 - column 18, line 41) is grounded, as claimed by claim 15
- iii. The gas-feeding apparatus (Figure 9; column 17, line 55 - column 18, line 41) according to claim 1, further comprising an RF power source coupled to the gas-distribution head (9a-c, 85a; Figure 9; column 17, line 55 - column 18, line 41) to exert RF power onto an interior of the reaction chamber (8; Figure 9; column 17, line 55 - column 18, line 41), as claimed by claim 16

Salimian teaches RF powered (12, 16; Figure 1) electrodes (34, 46) for plasma processing.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Salimian's RF power source to Okase's apparatus.

Motivation to add Salimian's RF power source to Okase's apparatus is for conducting plasma-enhanced processing substrates as taught by Salimian (column 1; lines 6-19).

Response to Arguments

12. Applicant's arguments with respect to claims 1-20, and 30-40 have been considered but are moot in view of the new grounds of rejection.

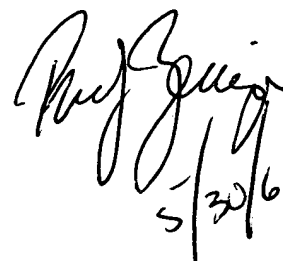
Conclusion

13. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272-1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (571) 273-8300. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.



Handwritten signature of Rudy Zervigon, dated 5/30/6.